

## **BATTING SWING TRAINER AND METHOD**

### **Background of the Invention**

5 This invention relates to a device and system for teaching a person the proper way to swing a baseball bat or the like. This application is a replacement for provisional application serial no. 60/246,465 filed November 7, 2000.

Teaching a person the proper technique for swinging a bat can be a difficult task. It can require years of practice and training with an experienced batting coach to 10 perfect the batter's swing. Proper swing technique encompasses proper hand placement and body movement, optimal bat acceleration, and ample power to hit the ball and is of the utmost importance in playing such sports as baseball or softball.

The present invention relates to a swing trainer for teaching a person the proper technique for swinging a bat in order to achieve maximum bat speed and power at 15 impact with a ball. In particular, the swing trainer teaches the user proper body form for swinging a bat and how to use his or her body most effectively when executing a swing.

Bat trainers and warm-up devices of various kinds have been conventionally proposed and used. One category of devices helps batters learn to "break" or "bend" 20 their wrists prior to contacting the ball. The theory is that breaking a batter's wrist ahead of the arms prior to contacting the ball will cause the ball to travel a greater distance when contact with the bat is made. Early bat trainers utilized weighted rings that fit around the hitting end of a standard bat. As the batter swings the bat, the weighted end helps the batter to break his or her wrist, theoretically improving ball

distance. U.S. Pat. No. 3,955,816 builds on this by altering the location and size of the weights. Similarly, U.S. Pat. No. 4,555,111 discloses a practice bat that includes a weighted bat head connected to a flexing mid-section. At the beginning of the swing, momentum and the flexing section cause the weighted bat head to lag behind the grip handle. At the end of the swing, momentum and the flexing section cause the weighted end to move ahead of the grip handle. This teaches the batter the proper time to “bend” or “break” the hands and wrists during the swing.

Other devices, such as U.S. Pat. No. 3,246,894, describe a practice bat for visibly recognizing where and when the ball contacts the bat. While the previously 10 described trainers may help batters determine when to move their hands and/or wrists during a swing or to recognize the optimal place a bat should contact the ball, none of the inventions described teaches the batter proper swing technique.

Devices to help improve a batter’s swing are available, but these devices typically help the batter to build shoulder and arm muscles used in swinging a bat and 15 improve muscle coordination. Many of these trainers include weights mounted to the shaft of the bat. For example, in U.S. Pat. No. 5,360,209 a batting trainer is disclosed that comprises a handle and a weighted shaft portion attached to a rod extending from the handle. The weighted shaft portion slides away from the grip handle as the batter accelerates the bat during the swing. This device trains the batter to better time 20 acceleration of the bat during the swing by demonstrating the point at which the acceleration of the bat causes the weighted shaft to slide up the rod.

U.S. Patent No. 4,634,121 discloses a baseball bat swing trainer comprising a baseball bat with a weight that can be mounted at multiple locations on the bat shaft.

Changing the position of the weight with respect to the grip handle changes the center of gravity of the bat and alters the effort required by the batter to swing the bat.

Another category of bat swing trainers is illustrated in U.S. Pat. No. 4,399,996, which shows a baseball bat with separate barrel and grip handle portions connected by a 5 spring. The spring is positioned so that the batter's hands will grip the bat on opposite sides of the spring. This arrangement teaches the batter to appreciate and achieve a proper acceleration when the bat impacts the ball.

Swing trainers are also available for use in other sports. For example, the Kallassy Swing Magic™, utilizes a conventional golf club with a pre-formed hand grip, 10 receiving receptacle and moveable hood to teach a person how to properly swing a golf club. In use, the user places one hand on the hand grip and the other hand on the moveable hood, while assuming a conventional golf stance. This posture, the hands close together and the club perpendicular to the mid-line of the body, constitutes the resting position. At the beginning of the swing, the user swings the club backwards 15 while moving the hood along the club shaft toward the club head extending the arm. When the user's arm is fully extended, the user begins to swing the club forward, past the starting position, while moving the hood toward the hand grip. As the user completes the follow through of the swing, the user's hands are close together, similar to the resting position. Repetitious use of this club teaches a golfer proper swing 20 technique. Because a golf club swing is different from a baseball bat swing, the Kallassy Swing Magic™ device does not offer any benefit when teaching a person proper baseball bat swinging technique.

The majority of the swing trainers described only help the batter to determine optimal bat acceleration or simply increase bat resistance by increasing the weight of the bat. A batter can increase muscle mass by increasing the weight of the bat he or she must swing, but still have poor swing technique. Further, obtaining optimal bat 5 acceleration can be achieved even if the batter's swing technique is poor. Therefore, none of the training bats described above is capable of teaching a batter proper swing technique.

Thus, an object of this invention is to provide a swing training tool, which teaches the batter proper swing technique and form. The trainer is adaptable to 10 individual batters and allows for differences in body frame, height and strength. Proper swing technique is taught regardless of the unique characteristics and experience of each batter.

Another object of this invention is to teach a batter the location of his or her body in relation to the bat during a swing. The prior art does not teach a batter the 15 proper way to swing the bat head outwardly, away from the body leading with the butt of the bat. Trainers that simply help a batter to break or bend his or her wrists ignore other parts of the body involved in the proper swing technique of a bat. Further, simply swinging weighted bats does not teach the batter the proper placement of the arms, hands, shoulders and torso throughout a swing of the bat. Outward swinging, 20 while keeping the hands and forearms close to the body, causes the batter to use more of his or her body when executing the swing, thereby achieving more bat speed and power. None of the available swing trainers enable the batter to practice and develop this skill.

One object of this invention is to demonstrate intuitively to the batter the proper form and position of the body while swinging a bat. When the batter swings the trainer, he or she can readily feel where the optimal placement of the hands, arms and body should be during and after the swing. Repetitious use of the swing trainer 5 promotes muscle memory for proper swing technique, thus allowing the batter to draw on those memories to utilize proper technique when swinging an actual, non-training bat.

The invention also permits the user to check the results of the trainer. After 10 conducting a series of practice swings using the slide training features of the invention, the user may grip the trainer in a manner similar to a conventional bat and use the trainer to check whether the user has achieved an increase in bat speed and power.

A further object of this invention is to provide a self-teaching training tool that a batter can use alone without the need for an experienced training coach. An inexperienced batter can learn how to swing a bat properly and with the correct 15 technique. Similarly, an experienced batter can use the trainer to improve his or her current swing technique or to increase the power behind an already perfected swing. Further, the trainer can be used in many sports requiring the use of a bat or the like, including but not limited to baseball, softball, cricket and the like.

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### **Summary of the Invention**

In general, the swing trainer is a practice bat for use in batting sports to instruct a batter on proper swing technique and form. The trainer is constructed of aluminum or other suitable material and comprises an elongated shaft having a circular cross-

section with a grip handle on one end of the shaft and a head on the other end. The shaft preferably has a substantially uniform circumference throughout most of its length. The grip handle resembles that of a conventional baseball bat handle. A leather wrap, foam grip or other suitable material covers the handle to give the user a 5 comfortable non-slip surface to hold.

A graspable slide is mounted on the shaft for movement along the shaft between the head and a stop, which is located on the shaft near or adjacent the handle. The slide is covered with a leather wrap, foam grip or other suitable material to match the covering on the handle. The stop can be a one-piece circular member that slides onto 10 the shaft before the handle is attached, or two separate semi-circular portions that are fastened together around the shaft. The stop is made of aluminum or other suitable material. The stop must be mounted on the handle so that will not move or come off during use. A buffer is attached to the end of the slide closest to the handle to prevent pinching of the batter's hand and to provide additional protection against the slide 15 inadvertently leaving the shaft. The buffer is made of plastic, such as nylon or polyethylene, or other suitable material. An upper bumper is preferably attached to the slide to prevent a batter's hands from being pinched between the slide and the bat head. The head serves as a means to prevent the slide from separating from the shaft. The head is generally weighted and can be so constructed as to accommodate different sized 20 weights for interchanging on a single trainer or to accommodate longer shafts. The head is connected to the shaft using an epoxy glue, pin and/or other suitable means. For example, a standard shear, spring or roll method of pinning can be utilized to

attach the head, as well as the handle, to the shaft. In an alternative embodiment, the head can be removable and interchangeable with other sized and weighted heads.

The shaft may vary in length and may consist of a hollow tube adapted to receive and hold a variety of weighted rods. Increasing the weight of the rod will 5 increase the resistance experienced by the user, thus increasing the difficulty level of the trainer.

To use the trainer, the user places one hand on the handle of the swing trainer.

For a right-handed batter this will be the left hand. The other hand of the user is placed on the slide, which is moved to the top of the shaft in contact with the head. This 10 constitutes the resting or initial position.

At the start of the swing, the batter's hands are spaced apart on the respective grips almost the entire length of the shaft. As the swing progresses, the slide is moved down the shaft toward the handle until it contacts the stop just above the handle. At this point the user's hands will be close together. This movement of the hands during 15 the swing causes the batter to swing the bat head outwardly away from the body while keeping the hands and forearms close to the body. Through repetitious use of the swing trainer, batters will develop muscle memory allowing them to swing a conventional bat more effectively.

As training progresses using the inventive trainer, the user may test his or her 20 progress by placing the slide in its position closest to the handle and gripping the trainer in a manner similar to a conventional bat, i.e., with both hands on the handle. Then, the batter swings the trainer as if it were a conventional bat. During the swing, the slide will move along the shaft from the handle area until it strikes the head. The slide

will move up the handle during the swing and strike the head. The sound emitted from this exercise will increase as bat speed and power increases, thereby audibly informing the user of the results of his or her training efforts. As will be appreciated, the invention is applicable to many sports utilizing bats or the like.

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### **Brief Description of the Drawings**

In the drawings

Fig. 1 is a perspective view of one embodiment of this invention;

10 Fig. 2 is a front elevation view of the embodiment of Fig. 1 with phantom lines depicting a hollow core and bore;

Fig. 3 is a cross-sectional view taken along lines 3-3 of Fig. 2;

Fig. 4 is a cross-sectional view taken along lines 4-4 of Fig. 3;

Figs. 5A, 5B, 5C show a batter swinging the embodiment of Fig. 1 with one

15 hand on the handle and the other hand on the sliding grip, progressing from the starting position (5A), to the mid-point of the swing (5B), and to the completion of the swing (5C);

Figs 6A, 6B, 6C show a batter swinging the embodiment of Fig 1 with both hands on the handle, progressing from the starting position (6A), to the mid-point of the 20 swing (6B) where the sliding grip contacts the head, and to the completion of the swing (6C);

Fig. 7 is a perspective view of another embodiment of this invention;

Fig. 8 is an exploded perspective view of the embodiment of Fig. 7; and

Fig. 9 is a cross-sectional view taken along lines 9-9 of Fig. 7.

### Detailed Description of the Preferred Embodiment

Referring to Figs 1-4, one embodiment of the swing trainer **10** is shown.

Specifically, Fig. 1 shows a swing trainer **10** comprising a shaft **12**, with a handle **14** on one end and a head **16** on the other. The handle **14** resembles the handle of a conventional baseball bat, having an end cap **18** and a gripping portion **20**, which may be covered with a leather or fabric wrap, foam grip, or other suitable material. A stop **22** is attached to the shaft **12** by a standard roll, shear or spring pin **17** or other suitable means, adjacent to the handle **14**. The shaft **12**, end cap **18**, and stop **22** can be made of aluminum or other suitable material.

A graspable slide **24** is mounted to the shaft **12** and moves along the shaft **12** between the stop **22** and the head **16**. The slide **24** may contain first and second buffers **26, 28** on each end and, similar to handle **14**, is covered with a leather or fabric wrap, foam grip or other suitable material to accommodate at least one hand. Preferably, the slide **24** and handle **14** have the same diameter and the covering for each is the substantially the same. The buffers **26, 28** can be made of plastic, such as nylon, or other suitable material that is capable of withstanding repetitive impacts. The head **16** is weighted and serves as an upper stop for the slide **24**. As shown in Figure 2, the head **16** contains a bore **30** that receives the shaft **12**. The head **16** and shaft **12** are permanently connected together using a standard roll, shear or spring pin **31**. Alternatively, the head **16** and shaft **12** can be bonded together using an epoxy glue or other suitable attaching means.

Referring to Figs 2,3 and 4, the trainer **10** is shown in greater detail. The shaft **12** includes a hollow core **32**, which is adapted to accommodate a weighted rod **34** (Fig. 4). The rod **34** may vary in weight and length depending on the needs and demands of the user and the length of the shaft **12**.

5 The trainer **10** is constructed by securing the first and second buffers **26, 28** to the ends of the slide **24** and then mounting the slide **24** onto the shaft **12**. Then, stop **22** is slid onto the shaft **12**, followed by the attachment of the handle **14** to one end of the shaft **12**. The weighted rod **34** is inserted into the core **32** of the shaft **12** and the shaft **12** is then secured by welding, epoxy glue, a pin **31**, or other securing means to the 10 head **16**. The end cap **18** is then attached to the handle end of shaft **12**, by welding, epoxy glue, a pin, or other suitable means.

Referring to Figs. 7-9, another embodiment of the trainer **10** is shown. In this embodiment the trainer **10** comprises a shaft **12**, with a handle **14** on one end and a head **16** on the other. The handle **14** contains an end cap **18** and a gripping portion **20**, 15 which similar to the embodiment of Figs 1-4, may be covered with a leather or fabric wrap **36**, foam rubber, or other suitable material. A stop **22** is attached to the shaft **12** adjacent to the handle **14**. Like the slide of the first embodiment, this slide **24** is mounted on the shaft **12** and moves along the shaft **12** between the stop **22** and the head **16**. The slide **24** contains first and second buffers **26, 28** on each end, and can 20 accommodate at least one hand. The head **16** comprises a receptacle **38** and a cap **40** and serves as an upper stop for the slide **24**.

As shown in Figs 8 and 9, the handle-end of the shaft **12** includes a threaded portion **42** to which the end cap **18** may be attached by means of complementary

threads **44** in the end cap **18**. A core **32** is provided in the shaft **12** to receive a rod **34**, which may vary in weight and length depending on the needs and demands of the user and the length of the shaft **12**.

Assembly of this embodiment is similar to the first embodiment, with a few exceptions (see Fig. 8). The first and second buffers **26**, **28** are affixed to the ends of the slide **24**, which is then mounted onto the shaft **12**. Then, the handle **14** is attached to the shaft **12**, the weighted rod **34** is inserted into the shaft **12**, and the end cap **18** is attached to the end of shaft **12**. With the handle **14** in place, the stop **22** is secured to the shaft **12**, as shown in Fig. 8. The stop **22** has first and second halves **46** and **48** that surround the shaft **12**. The halves **46** and **48** are secured to each other with screws **50**, **52** or other means that securely hold the stop **22** on the shaft **12**. As shown in Fig. 8, screws **50**, **52** are received in threaded portions **54**, **56**. The cap **40** is then inserted into the receptacle **38** of the head **16** and secured in a way which will not allow it to come off during use of the swing trainer **10**.

If desired, the batting trainer of this invention may be made with varying sized handles and grips to accommodate people with varying hand sizes. Various lengths for shafts **12** may also be used, and interchangeable heads **16** and the cap **40** may be made with varying weights to alter the difficulty level of the swing trainer **10**.

Referring to Fig. 5A, 5B, and 5C, the typical use of the swing trainer is shown. A person **58** grips the swing trainer **10** with one hand **60** on the handle **14** and the second hand **62** on the slide **24**. The hand on the handle **14** preferably is located adjacent the stop **22**, thus causing the user to have a "choked-up" position on the handle **14**. In the initial or starting position (Fig. 5A), the user moves the slide **24** toward the

head **16** until the user reaches a comfortable arm extension or the second buffer **28** comes to rest at the base of the head **16**. Thus in the starting position, the user's hands are spaced apart, the spacing varying depending on the user's size and reach.

As the user begins to swing the trainer **10**, the slide **24** is moved along the shaft

5      **12** toward the handle **14**, as shown in Fig. 5B. This causes the user to swing the bat head **16** outwardly and away from the person's body, while keeping the hands and forearms close to the body. As the user completes the swing (Fig. 5C), the slide **24** is moved further along the shaft **12** until the slide **24** is stopped by the stop **22**. Thus, at the completion of the swing, the user's hands **60, 62** are in close proximity, much like

10     on a conventional baseball bat. At this point, the first buffer **26** contacts the stop **22** (Fig. 5C). Using the swing trainer **10** in this way trains the user to swing a conventional bat head outwardly away from the body, while keeping the hands and forearms close to the body, thereby causing the user to use more of his or her body when executing a swing. With repetitive practice swings using the trainer **10**, proper

15     form and technique should eventually become sufficiently developed so that the person will duplicate such form and technique when swinging a conventional baseball bat. As the user becomes increasingly proficient using the swing trainer **10**, the user can increase the resistance of the trainer **10** by increasing the weight of the head **16** (as shown only in the second embodiment) or increasing the weight of the rod **40** inside the

20     shaft **12**, or both. As a user's skill and physical requirements change, the size of the handle **14**, the length of the shaft **12** or the weight of the bat head **16** can be altered to accommodate the changes.

Referring to Fig 6A, 6B and 6C, another use of the swing trainer is shown. The purpose of this use is to check the results of the user's training efforts with the inventive trainer. A person **58** grips the swing trainer **10** by placing both hands on the handle **14**, as shown in Fig 6A. In the initial or starting position (Fig. 6A), the user's hands are close together on the handle **14**, much like a conventional bat, and the slide **24** is located adjacent the handle and allowed to slide freely along the shaft **12**.

As the user begins to swing the trainer **10**, the slide **24** moves along the shaft **12** toward the head **16**, as shown in Fig. 6B, eventually contacting the head **16** and emitting an audible sound to indicate the force that the user generated by his or her swing. The louder the sound, the greater the swing force. As the user completes the swing (Fig. 6C), the slide **24** will remain adjacent the head **16**. Using the trainer **10** in this way, i.e., the check mode, allows the user to determine whether he or she has achieved greater power in the swing of the bat as a result of the use of the inventive trainer in the slide trainer mode (described in Figs 5A-5C). As shown in Figs 6A-6C, the audible sound would be caused by the impact of the slide **24** against the head **16**, but other mechanical or electronic means can be used to emit sounds, such as a bell or the like.

The preceding embodiments are to be regarded as illustrative of the invention, and it will be apparent to those skilled in the art that modifications may be made without departing from the objects of the invention. These modifications are intended to be included within the scope of the invention, as set forth in the appended claims and it is not intended that the invention be otherwise limited.